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(21)Application number : **07-060133**	(71)Applicant : **SONY CORP**
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(54) REMOTE CONTROLLER

(57)Abstract:

PURPOSE: To preset a command with a few key operation number of times and in a short time by allowing the remote controller to output sequentially a command signal while designating a manufacture number corresponding to an equipment in use and setting a command code of the command signal through its entering key operation.

CONSTITUTION: When the operation of an operation key is detected in the usual mode and a control section 20 discriminates an operated key to be a preset key 8, the control section 20 enters the preset mode and whether or not the operation of a ten-key 4a for manufacturer designation is made is discriminated at first. When the ten-key 4a is operated, whether or not the operation of the ten-key 4a is valid for consecutive two-digits corresponding to a command code number is discriminated. After the proper operation of the ten-key 4a, when a power key 3 to start transmission of a command code is operated within 10sec, the command code is preset and then the preset mode is terminated and the mode restores to the usual mode.
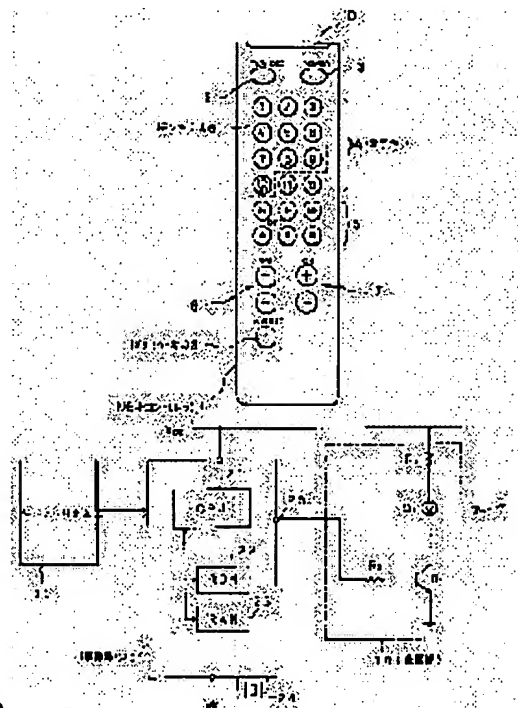
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* NOTICES *

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2.**** shows the word which can not be translated.
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CLAIMS

[Claim(s)]
[Claim 1] The storage means which memorized the classification information which a class number is set up by specific criteria and specifies 1 or two or more command code groups corresponding to each class number while the command code group of various classes is memorized, The actuation means activation actuation of a selection setup, assignment actuation of a class number, decision actuation of a selection setup, and whose output actuation of the various contents of a command are enabled at least, When activation actuation of the selection setup is carried out by said actuation means, it responds to assignment actuation of a class number. Sequential transmission of the command code of the same contents in each of the command code group applicable to the class number is carried out. As a command code group which had the command code group in which the command code transmitted when ENTA actuation was performed is contained chosen The remote controller characterized by having the setting control means set up so that each command code in the command code group may be outputted according to output actuation of the various contents of a command of said actuation means, and being constituted.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the remote controller which can operate by remote control to electronic equipment.
[0002]
[Description of the Prior Art] In various electronic equipment, that from which remote operation is constituted by the remote controller possible is known widely. Moreover, two or more command code groups from which a format and a coding scheme differ are memorized as such a remote controller, what has the preset feature which can carry out a selection setup of the command code group corresponding to a use device is known out of these command code groups, and it can respond to the device of various manufacturers from whom a format of command code differs, or a model by using this preset feature. In addition, a command code group here means the group of command code by whom the various contents, such as power-source ON / OFF, transfer in channel, and the volume control, are set up as the same format and a coding scheme about a television receiver.
[0003] And in the above remote controllers, there is the following as an example of the presetting actuation for carrying out a selection setup of the command code. For example, a number is attached for two or more kinds memorized by the remote controller of every command code groups (it is made a command code number), and the conversion table which expresses correspondence of the command code number of the command code adopted for every manufacturers of these as every ** and various manufacture names is prepared beforehand. And the approach a user inputs this command code number by the key stroke in presetting mode with reference to the command code number corresponding to the manufacture name of the device used as the candidate for actuation by the conversion table is learned.
[0004]
[Problem(s) to be Solved by the Invention] However, the same manufacturer does not restrict that only one command code per manufacturer often corresponds [that a format of different command code for every model is adopted] for a certain reason, either, but two or more command codes correspond per manufacturer in many cases. Therefore, a user redoes the assignment input of a certain number in detail out of two or more command code numbers which correspond to a manufacturer as presetting mode, when the number of the command codes corresponding to the manufacturer of the device used as the candidate for actuation is [two or more] in the case of the above presetting system, needs to repeat actuation check whether the device for actuation operates, and needs to perform it until a selection setup of the command code corresponding to the device for actuation is carried out. That is, the count of the key stroke for presetting increases very much, and it has the problem of being so troublesome.
[0005] Then, if predetermined actuation is made as presetting mode, for example, two or more command codes currently beforehand prepared in the remote controller When sequential transmission is made to be carried out for every (it is every about 5 seconds so that easily [the check of a device of operation] a user) predetermined time length, for example, a device side operates in response to a command signal, and a user performs ENTA actuation Under the present circumstances, that by which a selection setup

was made to be carried out in the command code group in which the transmitted command code is contained is known.

[0006] With such presetting system, it becomes the ENTA actuation for deciding the actuation for carrying out sequential transmission of the actuation for considering as presetting mode at least as a required key stroke, and a series of command codes, and a command code group, and it becomes possible to lessen the count of a key stroke. However, supposing the order of an output of the command code corresponding to a user's use device is set to the n-th Until this command code is outputted and it can perform definite actuation of command code noting that the air time length per command code is about 5 seconds as mentioned above The time amount more than 5x (n-1) second will surely be taken, and it has the problem that especially the time amount that presetting will take if the order of an output of required command code is set quite to the back will become fairly long.

[0007]

[Means for Solving the Problem] Then, this invention aims at obtaining the remote controller which can perform presetting of command code within the fewest possible key strokes and short time amount. For this reason, the storage section which memorized the classification information which a class number is set up by specific criteria and specifies 1 or two or more command code groups corresponding to each class number while the command code group of various classes is memorized, The control unit activation actuation of a selection setup, assignment actuation of a class number, decision actuation of a selection setup, and whose output actuation of the various contents of a command are enabled at least, When activation actuation of a selection setup is carried out by this control unit, it responds to assignment actuation of a class number. Sequential transmission of the command code of the same contents in each of the command code group applicable to the class number is carried out. As a command code group which had the command code group in which the command code transmitted when ENTA actuation was performed is contained chosen We decided to have the setting control section set up so that each command code in the command code group may be outputted according to output actuation of the various contents of a command of an actuation means, and to constitute a remote commander.

[0008]

[Function] If actuation of specifying the class number which followed the classification a manufacturer exception, according to model, etc., for example is carried out according to the above-mentioned configuration, the sequential output only of the command code corresponding to the manufacturer and model which were specified out of the command code by which two or more storage was carried out will be carried out, and presetting actuation of command code of deciding a user's necessary command code by ENTA actuation will be attained.

[0009]

[Example] Drawing 1 - drawing 5 explain the example of the remote controller of this invention below. Drawing 1 shows the example of an appearance of the remote controller 1 of an example. Especially this remote controller 1 was not considered as dedication at the device of a specific class, and can respond to a television receiver and at least two kinds of devices of a video tape recorder (it omits Following VTR (Video Tape Recorder)) in this case. Various actuation keys are arranged on the top face of a remote controller 1 so that it may illustrate. In this example, the TV/VTR mode exchange key 2, the power-source key 3, a numerical keypad 4, the video actuation key 5, the sound-volume up-and-down key 6, the channel up-and-down key 7, and a preset key 8 are formed. In this example, a preset key 8 is used in order to consider as the presetting mode for performing a selection setup of command code mentioned later. Moreover, a numerical keypad 4 is used as a key which specifies the channel of a television receiver, and in presetting mode, ten key 4a is formed of the key to "1-10" bundled and shown with a broken line, for example in this numerical keypad 4 (the "10" keys play the role of the "0" keys in this case), and it is used at the normal mode as a key group for specifying the manufacturer number which these ten key 4a mentions later. Moreover, each actuation key (2-8) shown in this drawing functions also as an enter key at the time of a user deciding command code like the after-mentioned at the time of presetting mode.

[0010] Drawing 2 shows the internal configuration of a remote controller 1. The various actuation keys (2-8) shown in drawing 1 are shown by drawing 2 as a key matrix 11. The information pressed about various actuation keys is supplied to a control section 20 from the key matrix 11. The control section 20 is formed with the microcomputer and has the central processing unit (CPU) 21, and ROM22 and RAM23. Actuation of a control section 20 is performed based on the clock from the clock generation section 24.

[0011] The command code corresponding to each of each actuation key (2-8) besides the program of a control section 20 of operation is memorized by ROM22. Furthermore, by this example, in various kinds of formats and a coding scheme, the command code (command code group) corresponding to each actuation key (2-8) is memorized to ROM22, respectively so that the actuation to each manufacturer and the device of each model can respond general-purpose. And a user does a selection setup of the command code corresponding to a manufacturer, a model, etc. of use device in presetting mode by the key stroke mentioned later on the occasion of use of a remote controller 1. From the command code group in various kinds of formats and coding scheme which are memorized by ROM22, one command code group will be chosen by this presetting actuation, and the command code corresponding to each actuation key (2-8) will be set up by it. Such setting information can be memorized by RAM23 and a user can use now henceforth as a thing corresponding to the device by which he uses this remote controller 1.

[0012] As fundamental actuation of a control section 20, when a certain actuation key is pressed, the command code corresponding to it is read from ROM22, and this is outputted from a terminal 25 as a signal modulated by the predetermined carrier frequency. The output signal from a terminal 25 is supplied to the transmitting section 10. It consists of a transistor Q1, a light emitting diode D1, resistance R1, and R2, and the transmitting section 10 is a transistor Q1. It responds to switching operation and is a light emitting diode D1. A current is controlled and it is made as [turn / infrared luminescence actuation / turn on /].

[0013] Therefore, the modulating signal of command code is a terminal 25 to the resistance R2. It minds and is a transistor Q1. When impressed by the base, it is a transistor Q1. It turns on/controls [off] corresponding to the pulse timing of a command code modulating signal. therefore, light emitting diode D1 from -- the transmitting output of the infrared signal corresponding to command code will be carried out. An infrared signal is received by the device for actuation etc. and necessary actuation is performed according to the contents of a command analyzed by the device side.

[0014] Next, the actuation for the presetting of the command code in this example and actuation of the remote controller 1 accompanying this are explained. In addition, the case where command code is set up about a television receiver as a class of device here is explained. First, let drawing 3 be drawing showing the example of correspondence of the command code adopted for every device of each manufacturer and each manufacturer. The manufacture name of a total of 16 companies is shown in this drawing from the left from A company to P company [two trains]. Moreover, as the "command code number" attached for every various command codes [three trains] from the left corresponds to the command code actually adopted, it is shown in each manufacturer's television receiver. For example, if it is A company, the command code group to which the command code number "01" was given will be adopted as the television receiver of its company, and if it is B company, the command code group which is three kinds to which the command code number of "05", "14", and "09" is given by the difference of a model etc. will be adopted. Furthermore, as shown in eye one train from the left here, the manufacturer number of "01" - "16" is attached by the double figure figure as opposed to each manufacture name.

[0015] And while each command code group of command code number "01" - "38" is memorized to ROM22 in the remote controller 1 of this example The command code number of the command code group adopted as each manufacturer as corresponds to the manufacturer number of drawing 3 is memorized. For example, about A company, a command code number "01" is memorized corresponding to a manufacturer number "01", and if similarly related with B company, corresponding to the manufacturer number "02", a command code number "02", "14", and "09" are memorized. Moreover, in

order that a user may refer to the manufacturer number which is required information like the after-mentioned to a user at the time of presetting, the conversion table in which the manufacturer number corresponding to these was entered as the manufacture name of the television receiver shown in drawing 3 R> 3 at least is attached to the remote controller 1 of this example. In addition, a command code number describes further as a conversion table, and since it considers only as the manufacturer number corresponding to a manufacture name and this as required information when a user does a selection setup of command code, by this example, the manufacturer number and the manufacture name should just be filled in at worst as a conversion table of this example, so that the operating procedure explained below may show, although the same thing as the contents shown in drawing 3 may be attached.

[0016] In addition, although the manufacturer number and command code number corresponding to the manufacture name of 16 companies are shown as shown in drawing 3 in this case, this is an example to the last and it cannot be overemphasized that it can change so that a conversion table may be made according to the number of manufacturers to which a remote controller 1 should actually correspond and the contents of command code data of ROM22 may be constituted.

[0017] The outline of the actuation for the presetting of the command code in the remote controller 1 of this example and actuation of the remote controller 1 accompanying this is as follows. First, a user checks the manufacturer number corresponding to the manufacture name of the television receiver which he is using with reference to an above-mentioned conversion table. Here, suppose that it explains that the television receiver which the user is using belongs to B company. Therefore, the user will grasp the manufacturer number "02" given to B company. And if a user operates the preset key 8 of a remote controller 1, a remote controller 1 will serve as presetting mode. In addition, although especially an example is not shown here, it is also possible to make it go into presetting mode by the combined control of a necessary actuation key etc., and a preset key 8 can be omitted in this case. In this presetting mode, a user does the assignment input of the manufacturer number "02" of correspondence of the B above-mentioned company. If a key stroke is performed in order of "0 (10)" -> "2" using ten key 4a in a numerical keypad 4 in the case of this example, it will be made to be carried out in the assignment input of a manufacturer number "02", and assignment of a manufacturer will be made by this.

[0018] Then, a user operates the power-source key 3 as a key stroke for command code transmitting initiation, after turning the transmit direction of a remote controller 1 to a television receiver side. According to this actuation, it is made to carry out sequential transmission of the command signal (henceforth a power-source command) for the power-source ON / OFF by the command code adopted at B company corresponding to a manufacturer number "02" for every predetermined time length by the remote controller 1. In addition, for example like F company besides A company, I company, and K company, when the manufacturer number of a manufacturer by whom corresponding command code is set to one is specified, it becomes the actuation which naturally transmits only this command code.

[0019] for example, according to drawing 3 , as contents of the command code corresponding to B company From making it a command code number and three kinds, "05", "14", and "09", being memorized by ROM22 of a remote controller 1 Predetermined time transmission of the power-source command in the code corresponding to a command code number "05" is carried out the 1st, and then the predetermined time [every] sequential output of each power-source command corresponding to a command code number "14" and "09" is made to be carried out from a remote controller 1, respectively. In addition, the air time for every command code can be set as arbitration, and although a user checks the actuation by the side of a receiver and performs ENTA actuation like the after-mentioned, it should just be set up in consideration of the time amount length (for example, about 5 seconds) which is extent to which allowances are generally given. Moreover, for example, as it corresponds to the diffusion rate of the model for every manufacturer, the order of an output is set up, the order of an output of the command code in one manufacturer can be set as arbitration, and raising the probability for ENTA actuation described below to be performed at an early stage, as much as possible is also considered.

[0020] When the period when the sequential output of the power-source command is carried out for every command code as mentioned above, and the user are seeing the power-source operating state of a television receiver, the power-source command transmitted by the command code for which a television

receiver is adapted is received and the power-source condition switches, a user is made to have the key (2-8) of the arbitration as which which key for example, on a remote controller 1 is sufficient operated. This key stroke turns into ENTA actuation of deciding command code. For example, in fact, supposing the command code of a command code number "14" is the command code which suits the television receiver which a user uses, a television receiver will perform the above-mentioned ENTA actuation, when a user looks at this condition, although a power-source condition will switch in response to the time of this command code being transmitted. RAM23 is made to memorize the data of the command code number "14" transmitted at the time of this ENTA actuation in a remote controller 1. Thus, decision of command code will be made, and it will escape from presetting mode, and will return to the normal mode. Thereby, when a remote controller 1 performs the various key strokes for a television receiver after that, the various command signals by the command code group of a command code number "14" will be transmitted, and various actuation of the television receiver which the user is using by the remote controller 1 of this example can be performed.

[0021] In addition, when there are no necessary key strokes, such as ten key 4a and the power-source key 3, in presetting mode, or when an input suitable at the time of actuation of ten key 4a is not made, in order that a user may consider that the actuation for presetting was abandoned or may urge again proper presetting actuation, progress of predetermined time (for example, about 10 seconds) is seen, and it enables it to return to the normal mode. With the proper alter operation of ten key 4a here For example, it corresponds to manufacturer number "01" - "16" which exists in drawing 3 . the input of double figures should do by two continuous actuation of ten key 4a -- and Saying [for example,] that this number of double figures is in agreement with any of "01" - "16" they are, neither numbers other than a double figure nor the numerical alter operation with ten key 4a effective even if it is double figures, when numbers other than manufacturer number "01" - "16", i.e., the number more than "17", are inputted becomes temporarily. Moreover, if ENTA actuation is not made even if it repeats the actuation which carries out sequential transmission of a series of command codes, for example at the time of transmission of the command code applicable to the manufacturer specified by the alter operation of ten key 4a 3 times, it escapes from presetting mode and can be made to return to the normal mode.

[0022] Thus, at the remote controller 1 of this example, when a user performs a presetting setup of command code, it will end with a total of five key strokes of actuation of the power-source key 3 for ten key actuation of two continuation for actuation of the preset key 8 for considering as presetting mode, and manufacturer assignment, and command transmitting initiation, and ENTA actuation. For example, although possibility of needing the remarkable count of a key stroke by the approach of setting up while inputting this command code number in detail and checking the actuation by the side of a device with reference to the command code number corresponding to the manufacture name explained previously (that is, when the conversion table of the manufacture name shown in drawing 3 and a command code number is attached) is high, in this example, it can always set up by five above-mentioned key strokes. Moreover, in this example, after performing manufacturer assignment, in order to transmit the command code corresponding to this manufacturer, when it compares with the method which is concerned with the classification for every [which was explained previously] manufacturer, and transmits many kinds of command codes according to predetermined order that there is nothing, possibility that selection of command code will be decided at an early stage will be high.

[0023] Next, the flow chart of drawing 4 and drawing 5 explains processing of the control section 20 for realizing actuation of the remote controller 1 of above this examples. If it is detected that a certain actuation key was operated in the normal mode as first shown in the flow chart of drawing 4 (F101), the actuation key by which the control section 20 was operated first will distinguish whether it is a preset key 8 (F102). Here, when it is distinguished that a preset key 8 was not operated, processing for transmitting the command signal according to the operated actuation key as the normal mode is performed (F103). That is, if it was operated any of the TV/VTR mode exchange key 2, the power-source key 3, a numerical keypad 4, the video actuation key 5, the sound-volume up-and-down key 6, and the channel up-and-down key 7 they are, the command code corresponding to the operated key will be read from ROM22, and the infrared signal corresponding to command code will be outputted from

the transmitting section 10 as mentioned above. That is, step F103 usually serves as processing after presetting completion.

[0024] On the other hand, if the preset key 8 was operated, a control section 20 will go into presetting mode (F104), and it will distinguish first whether actuation of ten key 4a for manufacturer assignment was made (F105). Here, although it progresses to step F109 when ten key 4a is not operated, if ten key 4a was operated, actuation of the above-mentioned ten key 4a will distinguish next whether it was the effective thing of the double figures continuation corresponding to a command code number which was mentioned above (F106). At step F106, when actuation of ten key 4a is not proper, it progresses to step F109, but it will be made to progress to step F107 if actuation of proper ten key 4a is made.

[0025] in this case, actuation of ten key 4a should make it above -- there needs to be nothing, or even if that actuation is performed, an effective number of inputs should do -- it enables it to return to processing of step F105, when there is nothing until it progresses to step F109 and 10 seconds pass If the period for the reinput by ten key 4a in the case of having performed the waiting period or incorrect input of actuation of ten key 4a for 10 seconds is established and ten key actuation is performed proper by processing of this step F109 at this period, it will progress to step F107. presetting mode is ended when for 10 seconds has passed without on the other hand performing proper ten key actuation (F110) -- it can be made to return to the normal mode

[0026] At step F107, it is distinguishing whether actuation of proper ten key 4a was made, and the power-source key 3 for command code transmitting initiation was operated within 10 seconds the back, and when it passes for 10 seconds, without making actuation of the power-source key 3 also in this case, presetting mode is ended (F110). It can be made to return to the normal mode. and if the power-source key 3 is operated within 10 seconds, transmitting processing of command code which was progressed and mentioned above to step F108, and processing of a presetting setup of command code based on ENTA actuation of a user will be performed, and presetting mode will be ended the back (F110) -- it will return to the normal mode.

[0027] And the transmission and a presetting setup of command code which are performed in the above-mentioned step F108 serve as processing actuation as shown in the flow chart of drawing 5 . By this routine, it distinguishes whether it is x= 1, using as x the number of the classes of command code corresponding to the manufacturer number in which the assignment input was carried out by ten key 4a in previous operating procedure (F201). that is, a control section 20 out of the command code data (refer to drawing 3) memorized with reference to ROM22 respectively corresponding to manufacturer number "0" - "16" The number of the command codes memorized corresponding to the specified manufacturer number is identified. For example, if the number is set to one like A company of a manufacturer number "01", it will progress to step F209, and if two or more command codes correspond like B company of a manufacturer number "02", it will progress to step F202.

[0028] And when it progresses to step F202, the number of the command codes corresponding to the appointed manufacturer number having been used as plurality, transmission of the power-source command by the command code which progresses to step F203 next as n= 1 about the variable n which corresponds in order of the output of command code here, and is made into the n-th is started. For example, if B company which shows drawing 3 , i.e., a manufacturer number, "02" was specified, the power-source command by the command code of a command code number "05" will be transmitted as the 1st by this processing, and sequential transmission of the power-source command by the command code of the 2nd, the 3rd command code number "14", and "09" will be carried out by a series of below-mentioned processings (step F204-F206-> F203).

[0029] It sets to the following step F204, and the ENTA actuation within predetermined time is stood by. And for example, it checks that the television receiver side has operated with the power-source command under current transmission, the user performed a certain key stroke in predetermined time, namely, when ENTA actuation is carried out, it progresses to step F208. The data of the command code number of the power-source command transmitted, for example at step F202 are set as RAM23 as command code corresponding to a television receiver, and it escapes from this routine, it progresses to step F110 of the flow chart of drawing 4 , presetting mode is ended, and it can be made to return to the

normal mode at step F208. When the various key strokes for operating a television receiver in the normal mode by this henceforth are performed by the remote controller 1, a control section 20 will operate so that the various command signals by the command code of the command code number set as RAM23 may be transmitted.

[0030] Noting that the manufacturer number "02" of B company is specifically specified by actuation of ten key 4a as mentioned above When the power-source command of the command code "05" which transmitted to the 1st temporarily is transmitted, supposing a user performs ENTA actuation The data of the command code group of "05" will be set up to RAM23, and the various command signals for a television receiver will be outputted in the subsequent normal modes by the command code in the command code group corresponding to a command code number "05." Moreover, processing explained below (step F205->F206-> F203) If there is ENTA actuation when the command code "14" which transmitted to the 2nd or the 3rd, or the power-source command by "09" is transmitted, the data which specify the command code group of "14" or "09" to RAM23 will be set up similarly.

[0031] On the other hand, at step F204, when there is no ENTA actuation into predetermined time After a control section 20 increments with n=n +1 about Variable n (F205) Distinguish whether transmission of the power-source command by two or more kinds of command codes which this variable n is made into n=x +1, or are set corresponding to the appointed manufacturer number took a round (F206). If a round is not taken yet, return to step F203, and transmitting processing by the n-th following command code is performed further. When a round is taken, it distinguishes whether the power-source command transmitting processing (processing of steps F202-F206) by the command code of all the classes corresponding to an assignment manufacturer number was repeated further 3 times (F207). Even if these processings are repeated 3 times, when there is no ENTA actuation by the user, it escapes from this routine and can be made to return to the normal mode, although it returns to step F202 when processing of a top Norikazu ream is not repeated 3 times at this step F207.

[0032] Although the processing in drawing 5 explained so far is a thing in case the number of command codes corresponding to the appointed manufacturer number is plurality in step F201, when this number of command codes is set to one, it progresses to step F209 from step F201. At step F209, transmission of the power-source command by one command code corresponding to this assignment manufacturer number is started, next, it sets to step F210, and the ENTA actuation within predetermined time is stood by. Here, if ENTA actuation is made by a certain key stroke of a user in predetermined time, it will progress to step F208, and the data of the command code concerned will be set as RAM23 as mentioned above, and it will escape from this routine. If it progressed to step F211 and the standby process (F209 ->F210) of the command transmission within the above-mentioned predetermined time and ENTA actuation was not performed 3 times, when there was no ENTA actuation into predetermined time, and it can be made to return to processing of step F209 and performed 3 times on the other hand, it escapes from this routine and can be made to return to the normal mode.

[0033] In addition, if processing of step F107 of drawing 4 , i.e., actuation of the power-source key 3, is omitted and a proper manufacturer number is inputted by ten key 4a as a modification of the above-mentioned example, it is also possible for it to be made to carry out the sequential output of the power-source command by each command code immediately, and the count of a key stroke which the presetting of command code takes so much can be reduced. Moreover, in case sequential transmission of the power-source command by each command code is carried out, it is also considered that treat as a key for a command signal sequential output for any, such as the sound-volume up-and-down key 6 and the channel up-and-down key 7, they are rather than transmitting [for example,] this automatically for every predetermined time, it corresponds for every key stroke of this, and the power-source command in each command code is made to be outputted according to predetermined order. Furthermore, the command transmitted in presetting mode is not limited to a power-source command, either, and as long as it is a television receiver, it may be constituted so that a channel change-over command etc. may be transmitted. Moreover, making it also make the command code which classifies into the group for every model also according to the same manufacturer when the classes of command code corresponding to one existing manufacturer for example although the case where only classified for every manufacturer as this

example showed to drawing 3 , and command code is made to correspond is explained are a large number fairly, and is adopted as the relevance model for every group correspond is thought of.
[0034] Moreover, in the remote controller 1 of the example shown in drawing 1 , since actuation of VTR is also possible and is made at least, naturally it is possible to constitute similarly, to VTR, so that the presetting of command code may be possible. Furthermore, similarly, if actuation of devices other than a television receiver or VTR is possible for a remote controller and it is made, it can constitute to these devices so that the presetting of command code may be possible. Although the remote controller of an infrared method furthermore explained, this invention is applicable similarly about the remote controller which transmits command code by other methods, such as an electric wave and a supersonic wave.
[0035]
[Effect of the Invention] As explained above, the remote controller of this invention The manufacturer number for example, corresponding to a use device is specified by key input as classification information. With having constituted so that the command code of the command signal which had transmitted when it was made to carry out the sequential output of the predetermined command signal for every command code corresponding to an assignment manufacturer and the ENTA actuation by the user was made might be set up In performing presetting for a selection setup of command code Reduction of the count of a key stroke, It will have the effectiveness of becoming possible to reconcile compaction of the time amount required by decision of command code, and the burden of the user at the time of the presetting of command code can be mitigated remarkably.

[Translation done.]

* NOTICES *

TECHNICAL FIELD

[Industrial Application] This invention relates to the remote controller which can operate by remote control to electronic equipment.

[Translation done.]

* NOTICES *

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PRIOR ART

[Description of the Prior Art] In various electronic equipment, that from which remote operation is constituted by the remote controller possible is known widely. Moreover, two or more command code groups from which a format and a coding scheme differ are memorized as such a remote controller, what has the preset feature which can carry out a selection setup of the command code group corresponding to a use device is known out of these command code groups, and it can respond to the device of various manufacturers from whom a format of command code differs, or a model by using this preset feature. In addition, a command code group here means the group of command code by whom the various contents, such as power-source ON / OFF, transfer in channel, and the volume control, are set up as the same format and a coding scheme about a television receiver.
[0003] And in the above remote controllers, there is the following as an example of the presetting actuation for carrying out a selection setup of the command code. For example, a number is attached for two or more kinds memorized by the remote controller of every command code groups (it is made a command code number), and the conversion table which expresses correspondence of the command code number of the command code adopted for every manufacturers of these as every ** and various manufacture names is prepared beforehand. And the approach a user inputs this command code number by the key stroke in presetting mode with reference to the command code number corresponding to the manufacture name of the device used as the candidate for actuation by the conversion table is learned.

[Translation done.]

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, the remote controller of this invention The manufacturer number for example, corresponding to a use device is specified by key input as classification information. With having constituted so that the command code of the command signal which had transmitted when it was made to carry out the sequential output of the predetermined command signal for every command code corresponding to an assignment manufacturer and the ENTA actuation by the user was made might be set up In performing presetting for a selection setup of command code Reduction of the count of a key stroke, It will have the effectiveness of becoming possible to reconcile compaction of the time amount required by decision of command code, and the burden of the user at the time of the presetting of command code can be mitigated remarkably.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, the same manufacturer does not restrict that only one command code per manufacturer often corresponds [that a format of different command code for every model is adopted] for a certain reason, either, but two or more command codes correspond per manufacturer in many cases. Therefore, a user redoes the assignment input of a certain number in detail out of two or more command code numbers which correspond to a manufacturer as presetting mode, when the number of the command codes corresponding to the manufacturer of the device used as the candidate for actuation is [two or more] in the case of the above presetting system, needs to repeat actuation check whether the device for actuation operates, and needs to perform it until a selection setup of the command code corresponding to the device for actuation is carried out. That is, the count of the key stroke for presetting increases very much, and it has the problem of being so troublesome.
[0005] Then, if predetermined actuation is made as presetting mode, for example, two or more command codes currently beforehand prepared in the remote controller When sequential transmission is made to be carried out for every (it is every about 5 seconds so that easily [the check of a device of operation] a user) predetermined time length, for example, a device side operates in response to a command signal, and a user performs ENTA actuation Under the present circumstances, that by which a selection setup was made to be carried out in the command code group in which the transmitted command code is contained is known.
[0006] With such presetting system, it becomes the ENTA actuation for deciding the actuation for carrying out sequential transmission of the actuation for considering as presetting mode at least as a required key stroke, and a series of command codes, and a command code group, and it becomes possible to lessen the count of a key stroke. However, supposing the order of an output of the command code corresponding to a user's use device is set to the n-th Until this command code is outputted and it can perform definite actuation of command code noting that the air time length per command code is about 5 seconds as mentioned above The time amount more than 5x (n-1) second will surely be taken, and it has the problem that especially the time amount that presetting will take if the order of an output of required command code is set quite to the back will become fairly long.

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MEANS

[Means for Solving the Problem] Then, this invention aims at obtaining the remote controller which can perform presetting of command code within the fewest possible key strokes and short time amount. For this reason, the storage section which memorized the classification information which a class number is set up by specific criteria and specifies 1 or two or more command code groups corresponding to each class number while the command code group of various classes is memorized, The control unit activation actuation of a selection setup, assignment actuation of a class number, decision actuation of a selection setup, and whose output actuation of the various contents of a command are enabled at least, When activation actuation of a selection setup is carried out by this control unit, it responds to assignment actuation of a class number. Sequential transmission of the command code of the same contents in each of the command code group applicable to the class number is carried out. As a command code group which had the command code group in which the command code transmitted when ENTA actuation was performed is contained chosen We decided to have the setting control section set up so that each command code in the command code group may be outputted according to output actuation of the various contents of a command of an actuation means, and to constitute a remote commander.

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EXAMPLE

[Example] Drawing 1 - drawing 5 explain the example of the remote controller of this invention below. Drawing 1 shows the example of an appearance of the remote controller 1 of an example. Especially this remote controller 1 was not considered as dedication at the device of a specific class, and can respond to a television receiver and at least two kinds of devices of a video tape recorder (it omits Following VTR (Video Tape Recorder)) in this case. Various actuation keys are arranged on the top face of a remote controller 1 so that it may illustrate. In this example, the TV/VTR mode exchange key 2, the power-source key 3, a numerical keypad 4, the video actuation key 5, the sound-volume up-and-down key 6, the channel up-and-down key 7, and a preset key 8 are formed. In this example, a preset key 8 is used in order to consider as the presetting mode for performing a selection setup of command code mentioned later. Moreover, a numerical keypad 4 is used as a key which specifies the channel of a television receiver, and in presetting mode, ten key 4a is formed of the key to "1-10" bundled and shown with a broken line, for example in this numerical keypad 4 (the "10" keys play the role of the "0" keys in this case), and it is used at the normal mode as a key group for specifying the manufacturer number which these ten key 4a mentions later. Moreover, each actuation key (2-8) shown in this drawing functions also as an enter key at the time of a user deciding command code like the after-mentioned at the time of presetting mode.

[0010] Drawing 2 shows the internal configuration of a remote controller 1. The various actuation keys (2-8) shown in drawing 1 are shown by drawing 2 as a key matrix 11. The information pressed about various actuation keys is supplied to a control section 20 from the key matrix 11. The control section 20 is formed with the microcomputer and has the central processing unit (CPU) 21, and ROM22 and RAM23. Actuation of a control section 20 is performed based on the clock from the clock generation section 24.

[0011] The command code corresponding to each of each actuation key (2-8) besides the program of a control section 20 of operation is memorized by ROM22. Furthermore, by this example, in various kinds of formats and a coding scheme, the command code (command code group) corresponding to each actuation key (2-8) is memorized to ROM22, respectively so that the actuation to each manufacturer and the device of each model can respond general-purpose. And a user does a selection setup of the command code corresponding to a manufacturer, a model, etc. of use device in presetting mode by the key stroke mentioned later on the occasion of use of a remote controller 1. From the command code group in various kinds of formats and coding scheme which are memorized by ROM22, one command code group will be chosen by this presetting actuation, and the command code corresponding to each actuation key (2-8) will be set up by it. Such setting information can be memorized by RAM23 and a user can use now henceforth as a thing corresponding to the device by which he uses this remote controller 1.

[0012] As fundamental actuation of a control section 20, when a certain actuation key is pressed, the command code corresponding to it is read from ROM22, and this is outputted from a terminal 25 as a signal modulated by the predetermined carrier frequency. The output signal from a terminal 25 is supplied to the transmitting section 10. It consists of a transistor Q1, a light emitting diode D1,

resistance R1, and R2, and the transmitting section 10 is a transistor Q1. It responds to switching operation and is a light emitting diode D1. A current is controlled and it is made as [turn / infrared luminescence actuation / turn on /].

[0013] Therefore, the modulating signal of command code is a terminal 25 to the resistance R2. It minds and is a transistor Q1. When impressed by the base, it is a transistor Q1. It turns on/controls [off] corresponding to the pulse timing of a command code modulating signal. therefore, light emitting diode D1 from -- the transmitting output of the infrared signal corresponding to command code will be carried out. An infrared signal is received by the device for actuation etc. and necessary actuation is performed according to the contents of a command analyzed by the device side.

[0014] Next, the actuation for the presetting of the command code in this example and actuation of the remote controller 1 accompanying this are explained. In addition, the case where command code is set up about a television receiver as a class of device here is explained. First, let drawing 3 be drawing showing the example of correspondence of the command code adopted for every device of each manufacturer and each manufacturer. The manufacture name of a total of 16 companies is shown in this drawing from the left from A company to P company [two trains]. Moreover, as the "command code number" attached for every various command codes [three trains] from the left corresponds to the command code actually adopted, it is shown in each manufacturer's television receiver. For example, if it is A company, the command code group to which the command code number "01" was given will be adopted as the television receiver of its company, and if it is B company, the command code group which is three kinds to which the command code number of "05", "14", and "09" is given by the difference of a model etc. will be adopted. Furthermore, as shown in eye one train from the left here, the manufacturer number of "01" - "16" is attached by the double figure figure as opposed to each manufacture name.

[0015] And while each command code group of command code number "01" - "38" is memorized to ROM22 in the remote controller 1 of this example The command code number of the command code group adopted as each manufacturer as corresponds to the manufacturer number of drawing 3 is memorized. For example, about A company, a command code number "01" is memorized corresponding to a manufacturer number "01", and if similarly related with B company, corresponding to the manufacturer number "02", a command code number "02", "14", and "09" are memorized. Moreover, in order that a user may refer to the manufacturer number which is required information like the after-mentioned to a user at the time of presetting, the conversion table in which the manufacturer number corresponding to these was entered as the manufacture name of the television receiver shown in drawing 3 R> 3 at least is attached to the remote controller 1 of this example. In addition, a command code number describes further as a conversion table, and since it considers only as the manufacturer number corresponding to a manufacture name and this as required information when a user does a selection setup of command code, by this example, the manufacturer number and the manufacture name should just be filled in at worst as a conversion table of this example, so that the operating procedure explained below may show, although the same thing as the contents shown in drawing 3 may be attached.

[0016] In addition, although the manufacturer number and command code number corresponding to the manufacture name of 16 companies are shown as shown in drawing 3 in this case, this is an example to the last and it cannot be overemphasized that it can change so that a conversion table may be made according to the number of manufacturers to which a remote controller 1 should actually correspond and the contents of command code data of ROM22 may be constituted.

[0017] The outline of the actuation for the presetting of the command code in the remote controller 1 of this example and actuation of the remote controller 1 accompanying this is as follows. First, a user checks the manufacturer number corresponding to the manufacture name of the television receiver which he is using with reference to an above-mentioned conversion table. Here, suppose that it explains that the television receiver which the user is using belongs to B company. Therefore, the user will grasp the manufacturer number "02" given to B company. And if a user operates the preset key 8 of a remote controller 1, a remote controller 1 will serve as presetting mode. In addition, although especially an example is not shown here, it is also possible to make it go into presetting mode by the combined

control of a necessary actuation key etc., and a preset key 8 can be omitted in this case. In this presetting mode, a user does the assignment input of the manufacturer number "02" of correspondence of the B above-mentioned company. If a key stroke is performed in order of "0 (10)" -> "2" using ten key 4a in a numerical keypad 4 in the case of this example, it will be made to be carried out in the assignment input of a manufacturer number "02", and assignment of a manufacturer will be made by this.

[0018] Then, a user operates the power-source key 3 as a key stroke for command code transmitting initiation, after turning the transmit direction of a remote controller 1 to a television receiver side. According to this actuation, it is made to carry out sequential transmission of the command signal (henceforth a power-source command) for the power-source ON / OFF by the command code adopted at B company corresponding to a manufacturer number "02" for every predetermined time length by the remote controller 1. In addition, for example like F company besides A company, I company, and K company, when the manufacturer number of a manufacturer by whom corresponding command code is set to one is specified, it becomes the actuation which naturally transmits only this command code.

[0019] for example, according to drawing 3 , as contents of the command code corresponding to B company From making it a command code number and three kinds, "05", "14", and "09", being memorized by ROM22 of a remote controller 1 Predetermined time transmission of the power-source command in the code corresponding to a command code number "05" is carried out the 1st, and then the predetermined time [every] sequential output of each power-source command corresponding to a command code number "14" and "09" is made to be carried out from a remote controller 1, respectively. In addition, the air time for every command code can be set as arbitration, and although a user checks the actuation by the side of a receiver and performs ENTA actuation like the after-mentioned, it should just be set up in consideration of the time amount length (for example, about 5 seconds) which is extent to which allowances are generally given. Moreover, for example, as it corresponds to the diffusion rate of the model for every manufacturer, the order of an output is set up, the order of an output of the command code in one manufacturer can be set as arbitration, and raising the probability for ENTA actuation described below to be performed at an early stage, as much as possible is also considered.

[0020] When the period when the sequential output of the power-source command is carried out for every command code as mentioned above, and the user are seeing the power-source operating state of a television receiver, the power-source command transmitted by the command code for which a television receiver is adapted is received and the power-source condition switches, a user is made to have the key (2-8) of the arbitration as which which key for example, on a remote controller 1 is sufficient operated. This key stroke turns into ENTA actuation of deciding command code. For example, in fact, supposing the command code of a command code number "14" is the command code which suits the television receiver which a user uses, a television receiver will perform the above-mentioned ENTA actuation, when a user looks at this condition, although a power-source condition will switch in response to the time of this command code being transmitted. RAM23 is made to memorize the data of the command code number "14" transmitted at the time of this ENTA actuation in a remote controller 1. Thus, decision of command code will be made, and it will escape from presetting mode, and will return to the normal mode. Thereby, when a remote controller 1 performs the various key strokes for a television receiver after that, the various command signals by the command code group of a command code number "14" will be transmitted, and various actuation of the television receiver which the user is using by the remote controller 1 of this example can be performed.

[0021] In addition, when there are no necessary key strokes, such as ten key 4a and the power-source key 3, in presetting mode, or when an input suitable at the time of actuation of ten key 4a is not made, in order that a user may consider that the actuation for presetting was abandoned or may urge again proper presetting actuation, progress of predetermined time (for example, about 10 seconds) is seen, and it enables it to return to the normal mode. With the proper alter operation of ten key 4a here For example, it corresponds to manufacturer number "01" - "16" which exists in drawing 3 . the input of double figures should do by two continuous actuation of ten key 4a -- and Saying [for example,] that this number of double figures is in agreement with any of "01" - "16" they are, neither numbers other than a double figure nor the numerical alter operation with ten key 4a effective even if it is double figures,

when numbers other than manufacturer number "01" - "16", i.e., the number more than "17", are inputted becomes temporarily. Moreover, if ENTA actuation is not made even if it repeats the actuation which carries out sequential transmission of a series of command codes, for example at the time of transmission of the command code applicable to the manufacturer specified by the alter operation of ten key 4a 3 times, it escapes from presetting mode and can be made to return to the normal mode.

[0022] Thus, at the remote controller 1 of this example, when a user performs a presetting setup of command code, it will end with a total of five key strokes of actuation of the power-source key 3 for ten key actuation of two continuation for actuation of the preset key 8 for considering as presetting mode, and manufacturer assignment, and command transmitting initiation, and ENTA actuation. For example, although possibility of needing the remarkable count of a key stroke by the approach of setting up while inputting this command code number in detail and checking the actuation by the side of a device with reference to the command code number corresponding to the manufacture name explained previously (that is, when the conversion table of the manufacture name shown in drawing 3 and a command code number is attached) is high, in this example, it can always set up by five above-mentioned key strokes. Moreover, in this example, after performing manufacturer assignment, in order to transmit the command code corresponding to this manufacturer, when it compares with the method which is concerned with the classification for every [which was explained previously] manufacturer, and transmits many kinds of command codes according to predetermined order that there is nothing, possibility that selection of command code will be decided at an early stage will be high.

[0023] Next, the flow chart of drawing 4 and drawing 5 explains processing of the control section 20 for realizing actuation of the remote controller 1 of above this examples. If it is detected that a certain actuation key was operated in the normal mode as first shown in the flow chart of drawing 4 (F101), the actuation key by which the control section 20 was operated first will distinguish whether it is a preset key 8 (F102). Here, when it is distinguished that a preset key 8 was not operated, processing for transmitting the command signal according to the operated actuation key as the normal mode is performed (F103). That is, if it was operated any of the TV/VTR mode exchange key 2, the power-source key 3, a numerical keypad 4, the video actuation key 5, the sound-volume up-and-down key 6, and the channel up-and-down key 7 they are, the command code corresponding to the operated key will be read from ROM22, and the infrared signal corresponding to command code will be outputted from the transmitting section 10 as mentioned above. That is, step F103 usually serves as processing after presetting completion.

[0024] On the other hand, if the preset key 8 was operated, a control section 20 will go into presetting mode (F104), and it will distinguish first whether actuation of ten key 4a for manufacturer assignment was made (F105). Here, although it progresses to step F109 when ten key 4a is not operated, if ten key 4a was operated, actuation of the above-mentioned ten key 4a will distinguish next whether it was the effective thing of the double figures continuation corresponding to a command code number which was mentioned above (F106). At step F106, when actuation of ten key 4a is not proper, it progresses to step F109, but it will be made to progress to step F107 if actuation of proper ten key 4a is made.

[0025] in this case, actuation of ten key 4a should make it above -- there needs to be nothing, or even if that actuation is performed, an effective number of inputs should do -- it enables it to return to processing of step F105, when there is nothing until it progresses to step F109 and 10 seconds pass If the period for the reinput by ten key 4a in the case of having performed the waiting period or incorrect input of actuation of ten key 4a for 10 seconds is established and ten key actuation is performed proper by processing of this step F109 at this period, it will progress to step F107. presetting mode is ended when for 10 seconds has passed without on the other hand performing proper ten key actuation (F110) -- it can be made to return to the normal mode

[0026] At step F107, it is distinguishing whether actuation of proper ten key 4a was made, and the power-source key 3 for command code transmitting initiation was operated within 10 seconds the back, and when it passes for 10 seconds, without making actuation of the power-source key 3 also in this case, presetting mode is ended (F110). It can be made to return to the normal mode. and if the power-source key 3 is operated within 10 seconds, transmitting processing of command code which was progressed

and mentioned above to step F108, and processing of a presetting setup of command code based on ENTA actuation of a user will be performed, and presetting mode will be ended the back (F110) -- it will return to the normal mode.

[0027] And the transmission and a presetting setup of command code which are performed in the above-mentioned step F108 serve as processing actuation as shown in the flow chart of <u>drawing 5</u> . By this routine, it distinguishes whether it is x= 1, using as x the number of the classes of command code corresponding to the manufacturer number in which the assignment input was carried out by ten key 4a in previous operating procedure (F201). that is, a control section 20 out of the command code data (refer to <u>drawing 3</u>) memorized with reference to ROM22 respectively corresponding to manufacturer number "0" - "16" The number of the command codes memorized corresponding to the specified manufacturer number is identified. For example, if the number is set to one like A company of a manufacturer number "01", it will progress to step F209, and if two or more command codes correspond like B company of a manufacturer number "02", it will progress to step F202.

[0028] And when it progresses to step F202, the number of the command codes corresponding to the appointed manufacturer number having been used as plurality, transmission of the power-source command by the command code which progresses to step F203 next as n= 1 about the variable n which corresponds in order of the output of command code here, and is made into the n-th is started. For example, if B company which shows <u>drawing 3</u> , i.e., a manufacturer number, "02" was specified, the power-source command by the command code of a command code number "05" will be transmitted as the 1st by this processing, and sequential transmission of the power-source command by the command code of the 2nd, the 3rd command code number "14", and "09" will be carried out by a series of below-mentioned processings (step F204-F206-> F203).

[0029] It sets to the following step F204, and the ENTA actuation within predetermined time is stood by. And for example, it checks that the television receiver side has operated with the power-source command under current transmission, the user performed a certain key stroke in predetermined time, namely, when ENTA actuation is carried out, it progresses to step F208. The data of the command code number of the power-source command transmitted, for example at step F202 are set as RAM23 as command code corresponding to a television receiver, and it escapes from this routine, it progresses to step F110 of the flow chart of <u>drawing 4</u> , presetting mode is ended, and it can be made to return to the normal mode at step F208. When the various key strokes for operating a television receiver in the normal mode by this henceforth are performed by the remote controller 1, a control section 20 will operate so that the various command signals by the command code of the command code number set as RAM23 may be transmitted.

[0030] Noting that the manufacturer number "02" of B company is specifically specified by actuation of ten key 4a as mentioned above When the power-source command of the command code "05" which transmitted to the 1st temporarily is transmitted, supposing a user performs ENTA actuation The data of the command code group of "05" will be set up to RAM23, and the various command signals for a television receiver will be outputted in the subsequent normal modes by the command code in the command code group corresponding to a command code number "05." Moreover, processing explained below (step F205->F206-> F203) If there is ENTA actuation when the command code "14" which transmitted to the 2nd or the 3rd, or the power-source command by "09" is transmitted, the data which specify the command code group of "14" or "09" to RAM23 will be set up similarly.

[0031] On the other hand, at step F204, when there is no ENTA actuation into predetermined time After a control section 20 increments with n=n +1 about Variable n (F205) Distinguish whether transmission of the power-source command by two or more kinds of command codes which this variable n is made into n=x +1, or are set corresponding to the appointed manufacturer number took a round (F206). If a round is not taken yet, return to step F203, and transmitting processing by the n-th following command code is performed further. When a round is taken, it distinguishes whether the power-source command transmitting processing (processing of steps F202-F206) by the command code of all the classes corresponding to an assignment manufacturer number was repeated further 3 times (F207). Even if these processings are repeated 3 times, when there is no ENTA actuation by the user, it escapes from this

routine and can be made to return to the normal mode, although it returns to step F202 when processing of a top Norikazu ream is not repeated 3 times at this step F207.

[0032] Although the processing in drawing 5 explained so far is a thing in case the number of command codes corresponding to the appointed manufacturer number is plurality in step F201, when this number of command codes is set to one, it progresses to step F209 from step F201. At step F209, transmission of the power-source command by one command code corresponding to this assignment manufacturer number is started, next, it sets to step F210, and the ENTA actuation within predetermined time is stood by. Here, if ENTA actuation is made by a certain key stroke of a user in predetermined time, it will progress to step F208, and the data of the command code concerned will be set as RAM23 as mentioned above, and it will escape from this routine. If it progressed to step F211 and the standby process (F209 ->F210) of the command transmission within the above-mentioned predetermined time and ENTA actuation was not performed 3 times, when there was no ENTA actuation into predetermined time, and it can be made to return to processing of step F209 and performed 3 times on the other hand, it escapes from this routine and can be made to return to the normal mode.

[0033] In addition, if processing of step F107 of drawing 4 , i.e., actuation of the power-source key 3, is omitted and a proper manufacturer number is inputted by ten key 4a as a modification of the above-mentioned example, it is also possible for it to be made to carry out the sequential output of the power-source command by each command code immediately, and the count of a key stroke which the presetting of command code takes so much can be reduced. Moreover, in case sequential transmission of the power-source command by each command code is carried out, it is also considered that treat as a key for a command signal sequential output for any, such as the sound-volume up-and-down key 6 and the channel up-and-down key 7, they are rather than transmitting [for example,] this automatically for every predetermined time, it corresponds for every key stroke of this, and the power-source command in each command code is made to be outputted according to predetermined order. Furthermore, the command transmitted in presetting mode is not limited to a power-source command, either, and as long as it is a television receiver, it may be constituted so that a channel change-over command etc. may be transmitted. Moreover, making it also make the command code which classifies into the group for every model also according to the same manufacturer when the classes of command code corresponding to one existing manufacturer for example although the case where only classified for every manufacturer as this example showed to drawing 3 , and command code is made to correspond is explained are a large number fairly, and is adopted as the relevance model for every group correspond is thought of.

[0034] Moreover, in the remote controller 1 of the example shown in drawing 1 , since actuation of VTR is also possible and is made at least, naturally it is possible to constitute similarly, to VTR, so that the presetting of command code may be possible. Furthermore, similarly, if actuation of devices other than a television receiver or VTR is possible for a remote controller and it is made, it can constitute to these devices so that the presetting of command code may be possible. Although the remote controller of an infrared method furthermore explained, this invention is applicable similarly about the remote controller which transmits command code by other methods, such as an electric wave and a supersonic wave.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the explanatory view of the appearance of the remote controller of the example of this invention.
[Drawing 2] It is the explanatory view of the internal configuration of the remote controller of an example.
[Drawing 3] It is drawing showing an example of the manufacturer number corresponding to the manufacture name of an example, and a command code number.
[Drawing 4] It is the flow chart which shows processing actuation of the control section of the remote controller of an example.
[Drawing 5] It is the flow chart which shows the processing for the command signal transmission at the time of presetting mode, and a command code setup in an example.
[Description of Notations]
1 Remote Controller
4 Numerical Keypad
4a Ten key
8 Preset Key
10 Transmitting Section
11 Key Matrix
20 Control Section
21 CPU
22 ROM
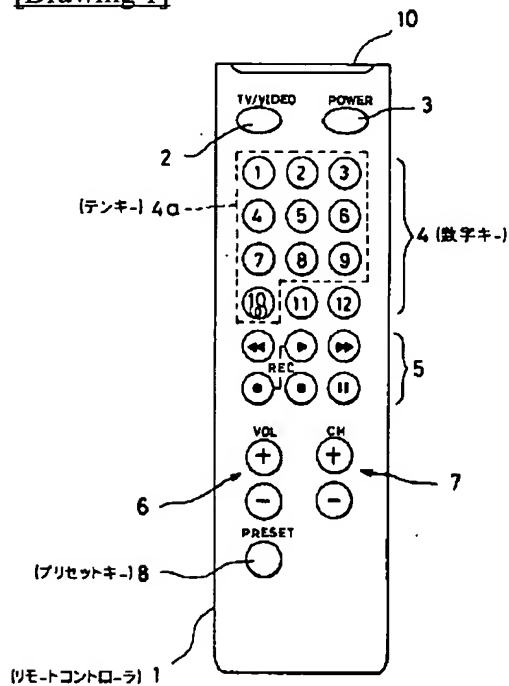23 RAM

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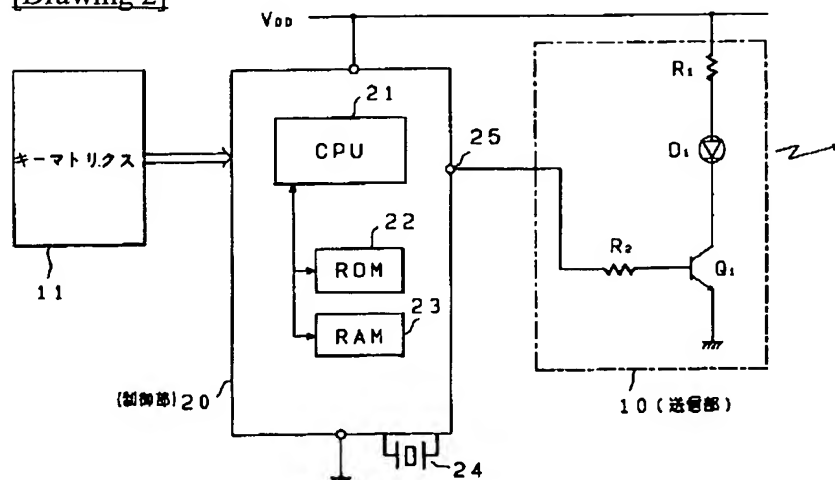damages caused by the use of this translation.

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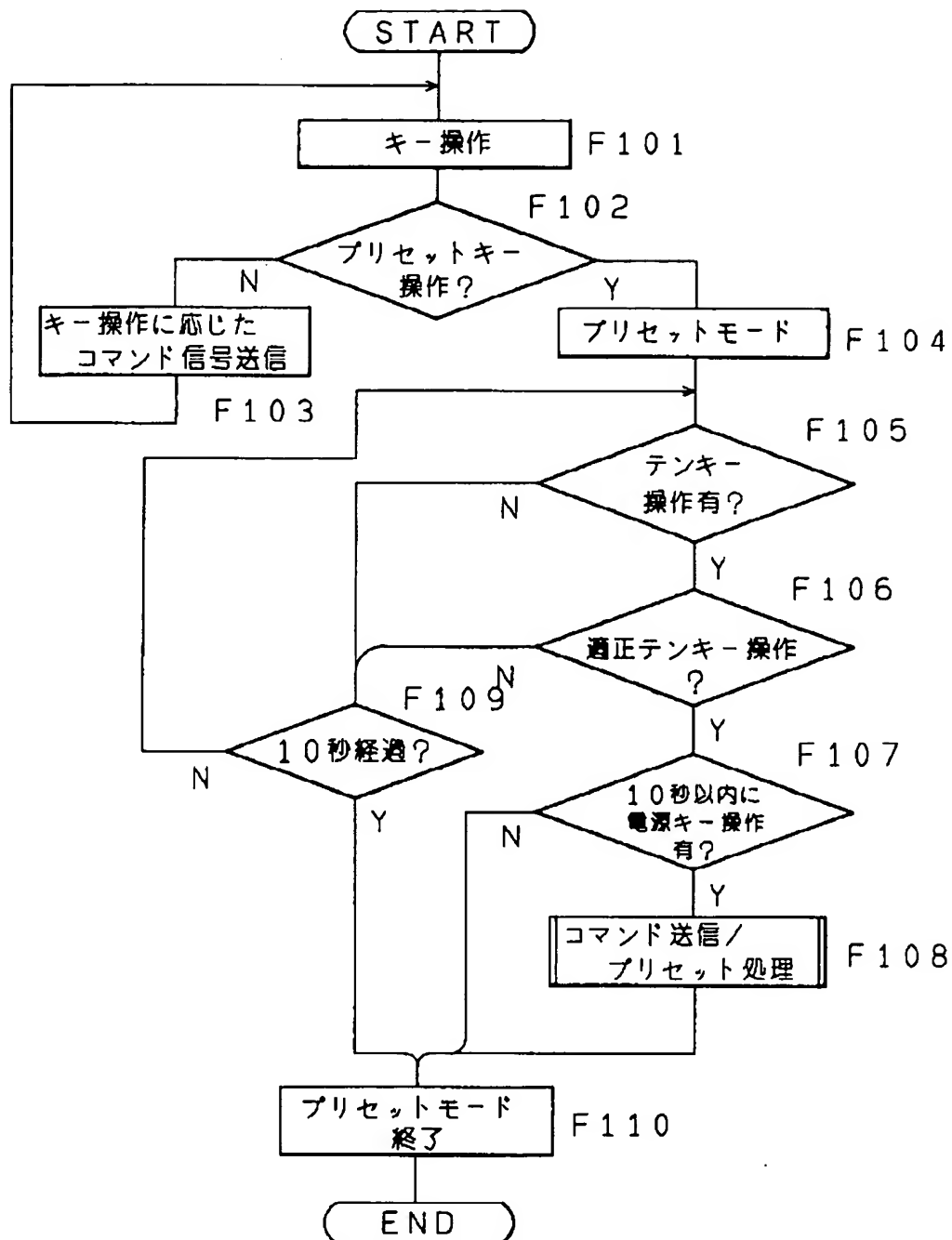3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]

[Drawing 2]

[Drawing 3]

メーカー番号	メーカー名	TV コマンドコード番号
01	A社	01
02	B社	05 14 09
03	C社	14 09 38
04	D社	03 12
05	E社	22 23 20 21
06	F社	11
07	G社	03 19 23
08	H社	35 36 03
09	I社	13
10	J社	22 13 20 21 23 03 15
11	K社	25
12	L社	02 18 03 07
13	M社	03 13 12 30
14	N社	31 13 03 32
15	O社	03 02 30 07
16	P社	28 29

[Drawing 4]

START

キー操作　　F101

F102
プリセットキー操作？
N　　　　　　　　Y

キー操作に応じた
コマンド信号送信
F103

プリセットモード　　F104

F105
テンキー操作有？
N　　　　　　Y

F106
適正テンキー操作？
N　　　　　Y

F109
10秒経過？
N　　　　Y

F107
10秒以内に電源キー操作有？
N　　　　Y

コマンド送信／
プリセット処理　　F108

プリセットモード
終了　　F110

END

プリセットモード時の処理動作

[Drawing 5]

F201

x = 1 ?

Y　　　　　　　　　N

電源コマンド送信　F209

F210

所定時間内にエンター操作有？

Y

N　　F211

送信処理3回経過？

N

Y

n = 1　　F202

F203

第nのコードの電源コマンド送信

F204

所定時間内にエンター操作有？

Y

F208

コマンドコード設定

N　　F205

n = n + 1

F206

n = x + 1 ?

N

Y

F207

全コードの送信処理3回経過？

N

Y
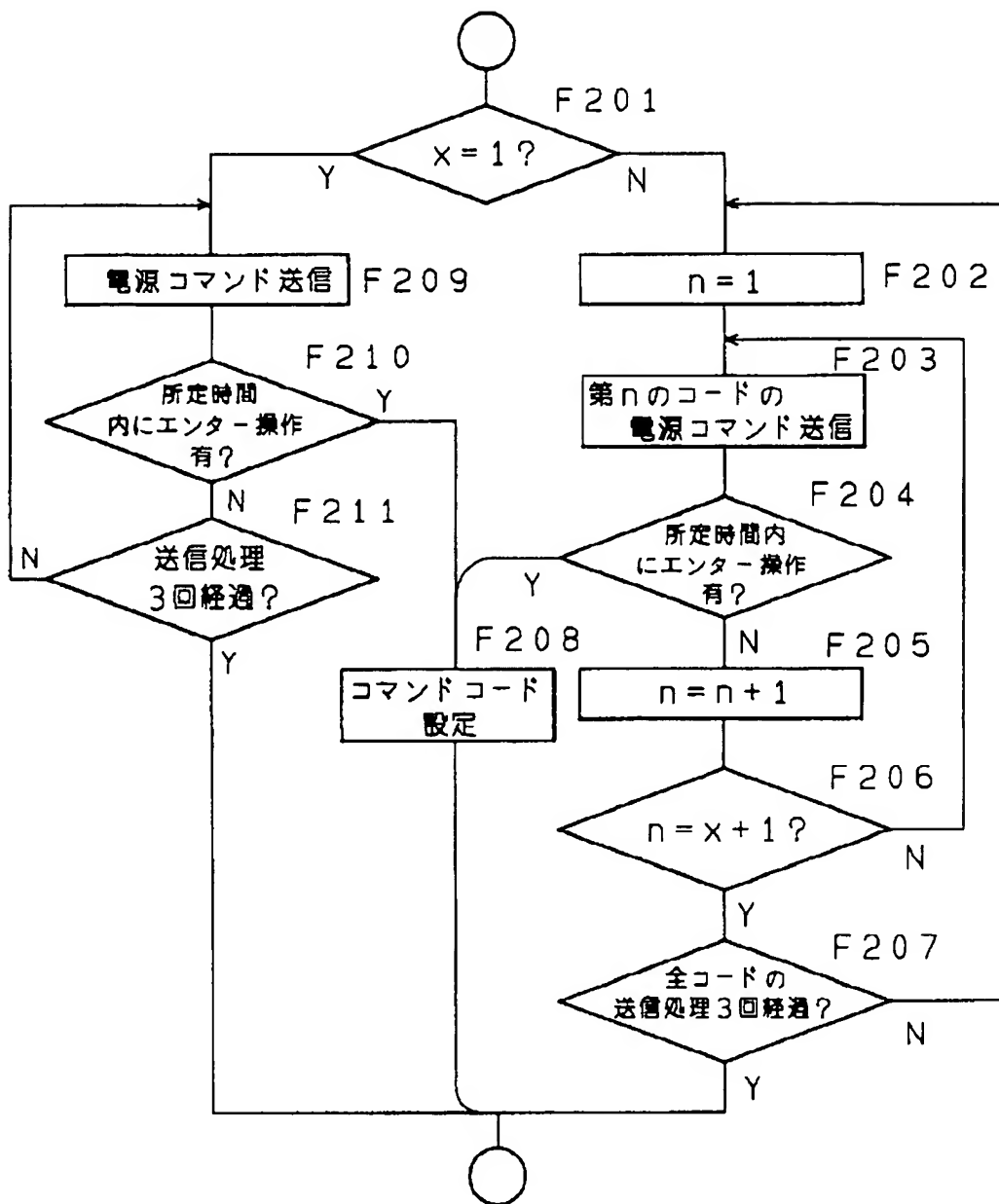
コマンドコード送信／プリセット処理

[Translation done.]